PROJECT: _____

STATION: _____

SHEET _____ OF _____

CULVERT DESIGN FORM

DESIGNER/DATE: _____ OF _____

REVIEWER/DATE: _____ OF _____

SEE ADD'L. SHEETS

HYDROLOGICAL DATA

☐ METHOD: _____

☐ DRAINAGE AREA: _____ ☐ STREAM SLOPE: _____

☐ CHANNEL SHAPE: _____

☐ ROUTING: _____ ☐ OTHER: _____

DESIGN FLOWS/TAILWATER

R.I. (YEARS)	FLOW (m^3/s)	TW (m)

CULVERT DESCRIPTION: MATERIAL-SHAPE-SIZE-ENTRANCE	TOTAL FLOW Q (m^3/s)	FLOW PER BARREL Q/N (1)	HEADWATER CALCULATIONS											CONTROL HEADWATER ELEVATION	OUTLET VELOCITY	COMMENTS
			INLET CONTROL				OUTLET CONTROL									
			HW_i/D (2)	HW_i	FALL (3)	EL_{hi} (4)	TW (5)	d_c	$\frac{d_c + D}{2}$	h_o (6)	k_e	H (7)	EL_{ho} (8)			

TECHNICAL FOOTNOTES:

(1) USE Q/NB FOR BOX CULVERTS

(2) HW_i/D = HW/D OR HW_t/D FROM DESIGN CHARTS

(3) FALL = $HW_i - (EL_{hd} - EL_{sf})$; FALL IS ZERO FOR CULVERTS ON GRADE

(4) $EL_{hi} = HW_i + EL_i$ (INVERT OF INLET CONTROL SECTION)

(5) TW BASED ON DOWNSTREAM CONTROL OR FLOW DEPTH IN CHANNEL

(6) h_o = TW or $(d_c + D)/2$ (WHICHEVER IS GREATER)

(7) $H = (1+k_e+(19.63\ n^2L)/R^{1.33})\ V^2/2g$

(8) $EL_{ho} = EL_o + H + h_o$

SUSCRIPT DEFINTIIONS:

a	Approximate
f	Culvert Face
hd	Design Headwater
hi	Headwater in Inlet Control
ho	Headwater in Outlet Control
i	Inlet Control Section
o	Outlet
sf	Streambed at Culvert Face
tw	Tailwater

COMMENTS/DISCUSSION:

CULVERT BARREL SELECTED:

SIZE: _____

SHAPE: _____

MATERIAL: _____ n: _____

ENTRANCE: _____

CULVERT DESIGN FORM (Conventional End Treatment)
Figure 31-10D